

LPDES PERMIT NO. LA0002887, AI No. 2432**LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA**

- I. **Company/Facility Name:** Cleco Power, LLC
Teche Power Station
Post Office Box 300
Baldwin, LA 70514
- I. **Issuing Office:** Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
- II. **Prepared By:** Lisa Kemp
Industrial Permits Section
Water Permits Division
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Date Prepared: November 12, 2009

III. **Permit Action/Status:**

A. Reason For Permit Action:

Proposed reissuance of a Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46.

LAC 33: IX Citations: Unless otherwise stated, citations to LAC 33: IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301.F, 4901, and 4903.

- B. LPDES permit – (LA0002887) effective date: February 1, 2005
expiration date: January 31, 2010
EPA has not retained enforcement authority.

This permit was modified effective August 1, 2005 to remove Part II, Paragraph K, Temperature Survey, from the permit.

A second modification, effective January 7, 2008, incorporated the remanding of major portions of the 316(b) Rule on January 25, 2007.

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- C. LPDES permit - (LAR05N624) effective date: May 25, 2006
expiration date: April 30, 2011
- D. Application received on July 31, 2009; permit application addendum received on October 8, 2009; 316(b) calculation baseline information received on October 23, 2009.

IV. Facility Information:

- A. Location - 237 Newman Street, in Baldwin, St. Mary Parish
(Latitude 29°49'29", Longitude 91°32'39")
- B. Applicant Activity - According to the application, Cleco Power, LLC, Teche Power Station (TPS), is a steam electric generating station. TPS operates three electric utility units. Units 1 and 2, both installed in the 1950s, are natural gas-fired boiler/turbine systems of 23 MW and 54 MW capacity, respectively. Unit 3 is a 359 MW boiler/turbine system installed in 1971 which can be fired with natural gas, no. 2 fuel oil, or no. 4 fuel oil. Each unit has its own boiler that generates high pressure steam. The steam is sent to its own turbine which in turn generates electricity. Unit 3 is the main electric utility unit at the site. Units 1 and 2 have operated very infrequently in the past few years, only a few days per year. They are maintained in case they are needed for emergencies.

Cleco has proposed the addition of one natural gas-fired combustion turbine (Unit 4) and one diesel internal combustion engine. The Unit 4 turbine will be a combustion turbine with an output of 38.4 MW (name plate rating). The diesel engine will be a 600 horsepower Detroit engine which will be used to spin-start the turbine. Proposed Unit 4 will not operate continuously; its primary purpose is to serve as a backup during emergency power outages and as a peaker, starting on demand when needed.

Sanitary wastewater from the TPS goes to a Publically Owned Treatment Works (POTW) for treatment and discharge. Stormwater runoff is covered under the Multi-Sector General Permit for Stormwater Discharges Associated With Industrial Activity.

- C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401-402, and 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903)

Guideline

Reference

Steam Electric Power Generating

40 CFR 423

Other sources of technology based limits:

Current LPDES permit (effective February 1, 2005)

LPDES General Permit LAG670000

Best Professional Judgement

- D. Fee Rate -
 - 1. Fee Rating Facility Type: Major
 - 2. Complexity Type: III
 - 3. Wastewater Type: I

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4. SIC code: 4911

E. Continuous Facility Effluent Flow (Max 30-Day) - 264 MGD.

V. **Receiving Waters:** Charenton Canal

1. TSS (15%), mg/L: 22.05
2. Average Hardness, mg/L CaCO₃: 106.6
3. Critical Flow, cfs: 989.4
4. Mixing Zone Fraction: 1/3
5. Harmonic Mean Flow, cfs: 2968.2
6. River Basin: Vermilion-Teche River, Segment No. 060601
7. Designated Uses:

The designated uses are primary contact recreation, secondary contact recreation, fish and wildlife propagation, and drinking water supply*.

* The discharge from this facility is not located in a surface drinking water protection area.

Information based on the following: LAC 33: IX Chapter 11; /Recommendation(s) from the Engineering Section. Ambient data for hardness and 15% TSS was taken from ambient monitoring station #0674 (Charenton Canal at LA Highway 82, one mile south of Baldwin and 2.5 miles northwest of Franklin).

Tidal flow calculations were performed at this site and documented in a memo dated January 5, 2004 from Chike to Loyd (EDMS Document #34183121). According to the memo, tidal flow calculations were based on a tidal prism done on a portion of Bayou Teche, Charenton Canal, and Lake Fausse Pointe above the discharge point. From USGS gage No. 091360000, the average tidal influence was determined to be approximately 2 inches. From the calculations, the critical flow was determined to be 989.4 cfs and the harmonic mean flow was determined to be 2,968.2 cfs. There have been no significant changes to the hydrology in this area; therefore, the above-mentioned values for the critical flow and the harmonic mean are used for permit limitation calculations.

VI. **Outfall Information:**

Outfall T01

- A. Type of wastewater – once-through non-contact cooling water from Units 1 and 2; previously monitored effluent from Outfalls T02, T03, T09, and T10; miscellaneous maintenance wastewaters (*1), and stormwater runoff
- B. Location – at the point where the combined effluent discharges to the Charenton Canal (Latitude 29°49'17", Longitude 91°32'39")
- C. Treatment - none
- D. Flow - Continuous, (Max 30-Day) 71 MGD
- E. Receiving waters - Charenton Canal

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- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

Outfall T02 (internal)

- A. Type of wastewater – low volume wastewaters from Units 1 and 2, miscellaneous maintenance wastewaters (*1) and *de minimis* stormwater runoff
- B. Location – at the point where the combined effluent discharges prior to combining with other waters at Outfall T01 (Latitude 29°49'20", Longitude 91°32'36")
- C. Treatment – oil/water separator
- D. Flow - Intermittent, (Max 30-Day) 0.0425 MGD
- E. Receiving waters – Outfall T01 to the Charenton Canal
- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

Because some floor drains are located outside, *de minimis* amounts of stormwater are discharged through this outfall.

Outfall T03 (internal)

- A. Type of wastewater – low volume wastewater including but not limited to boiler blowdown from Units 1 and 2
- B. Location - at the point where the combined effluent discharges prior to combining with other waters at Outfall T01 (Latitude 29°49'20", Longitude 91°32'37")
- C. Treatment - none
- D. Flow - Intermittent, (Max 30-Day) 0.0165 MGD
- E. Receiving waters – Outfall T01 to the Charenton Canal
- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601

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Outfall T04 (internal)

- A. Type of wastewater – low volume wastewater including but not limited to filter backwash, demineralizer wastewater, neutralization tank wastewater, and well water from sample coolers; and miscellaneous maintenance wastewater (*1)
 - B. Location - at the point where the combined effluent discharges prior to combining with other waters at Outfall T05 (Latitude 29°49'24", Longitude 91°32'43")
 - C. Treatment - neutralization
 - D. Flow - Continuous, (Max 30-Day) 0.0927 MGD
 - E. Receiving waters – Outfall T05 to the Charenton Canal
 - F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

Outfall T05

- A. Type of wastewater - once-through non-contact cooling water from Unit 3 (under normal conditions, the boiler blowdown discharges from T07 become the make-up water for the once-through cooling water); previously monitored effluent from Outfalls T04, T08, and T09; miscellaneous maintenance wastewaters (*1), and stormwater runoff
 - B. Location - at the point where the combined effluent discharges prior to combining with waters of the Charenton Canal (Latitude 29°49'10", Longitude 91°32'45")
 - C. Treatment - none
 - D. Flow - Continuous, (Max 30-Day) 193.053 MGD
 - E. Receiving waters - Charenton Canal
 - F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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Outfall T06

- A. Type of wastewater – low volume wastewater from Unit 3, miscellaneous maintenance wastewater (*1), previously monitored effluent from T09, and de minimis stormwater runoff
 - B. Location – at the point where the combined effluent discharges, prior to combining with waters of the Charenton Canal (Latitude 29°49'22", Longitude 91°32'32")
 - C. Treatment – oil/water separator
 - D. Flow - Continuous, (Max 30-Day) 0.158 MGD
 - E. Receiving waters - Charenton Canal
 - F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

Because some floor drains are located outside, de minimis amounts of stormwater are discharged through this outfall.

Outfall T07

- A. Type of wastewater - low volume wastewater from Unit 3 including but not limited to boiler blowdown, miscellaneous maintenance wastewater (*1), and previously monitored effluent from T09
- Note: Under normal operations, the boiler blowdown discharges become the make-up water for once-through non-contact cooling water at Outfall T05. Therefore, no discharge occurs from this outfall when Unit 3 is in operation and the circulation pumps are running for the once-through non-contact cooling water. However, when Unit 3 is not in operation, boiler blowdown discharges are routed via this outfall.
- B. Location - at the point where the combined effluent discharges, prior to combining with waters of the Charenton Canal (Latitude 29°49'22", Longitude 91°32'35")
 - C. Treatment - none
 - D. Flow - Intermittent, (Max 30-Day) 0.015 MGD
 - E. Receiving waters - Charenton Canal
 - F. Basin and segment - Vermilion-Teche River Basin, Segment 060601
- (*1) miscellaneous maintenance wastewaters include but are not limited to: fire systems test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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Outfall T08 (internal)

- A. Type of wastewater – metal cleaning wastewater
- B. Location – at the point of discharge from the treatment facility prior to combining with other waters (Latitude 29°49'17", Longitude 91°32'46")
- C. Treatment – Neutralization, Precipitation, Sedimentation
- D. Flow - Intermittent, (Max 30-Day) 0.04 MGD
- E. Receiving waters - Outfall T05 to the Charenton Canal
- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601

Note: According to the application, this outfall does not routinely discharge. Cleco TPS cleans the boilers approximately once every four years, and the metal cleaning wastewater is containerized, treated, and properly disposed off site. However, Cleco wishes to retain Outfall T08 in case this procedure changes and the treated metal wastewater is discharged. Because metal cleaning wastewater has not discharged in many years, records of prior discharges were provided for effluent characterization data.

Outfall T09 (internal)

- A. Type of wastewater – hydrostatic test wastewater
- B. Location – at the point of discharge from the piping or vessel being tested or prior to discharge from the holding tank before combining with any other waters
- C. Treatment - none
- D. Flow - Intermittent
- E. Receiving waters - Charenton Canal (may be discharged through any final outfall)
- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601

Outfall T10 (internal)

- A. Type of wastewater – low volume wastewater from Unit 4 including but not limited to maintenance washdown water and de minimis stormwater runoff.
- B. Location – at the point of discharge from the oil/water separator, prior to combining with other waters
- C. Treatment – oil/water separator
- D. Flow – Intermittent; estimated flow is 0.005 MGD

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- E. Receiving waters – Outfall T01 to the Charenton Canal
- F. Basin and segment - Vermilion-Teche River Basin, Segment 060601

Washwater from cleaning the turbines for proposed Unit 4 will not be discharged but rather will be disposed off site.

VII. Current Effluent Limits

See Appendix A.

VIII. Proposed Permit Limits:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

Summary of Proposed Changes From the Current LPDES Permit:

- A. The facility requested that flow monitoring frequency for Outfalls T02, T03, T04, T06, T07, and T08 be changed from once per day to once per week. Outfalls T02, T03, T04, T06, T07, and T08 are intermittent discharges. Therefore, this request has been granted for Outfalls T02, T03, T07, and T08. Outfalls T04 and T06 are continuous discharges. However, all limitations at Outfalls T04 and T06 are concentration based and a DMR review did not reveal compliance problems at either outfall. Therefore, flow monitoring frequency for Outfalls T04 and T06 has been changed from once per day to once per week.
- B. Internal Outfall T10 has been added for the discharges from the proposed addition of Unit 4 at the facility.
- C. Daily maximum temperature will now be measured by flow-weighted averaging based on current guidance for similar discharges.
- D. Miscellaneous wastewater has been removed from the discharge description at Outfall T03.
- E. Flow limitations have been removed from Outfalls T01 and T05 per current guidance.
- F. The sample location description for Outfall T09, hydrostatic test water, has been changed to include discharges of hydrostatic test water from a holding tank.
- G. Biomonitoring - the dilution series for Freshwater Chronic Biomonitoring at Outfalls T01 and T05 was changed to reflect 23%, 31%, 42%, 55%, and 74% (with 55% defined as the critical dilution) instead of 27%, 36%, 48%, 64%, and 86% (with 86% defined as the critical dilution). The biomonitoring frequency shall be once per quarter for the term of the permit. See Biomonitoring Recommendation, Appendix C.
- H. Part II conditions for implementation of 316(b) Phase II Rule requirements have been placed in the draft permit. See Section IX.E, below.

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- I. The Stormwater Pollution Prevention Plan requirements have been removed from Part II of the draft permit because stormwater runoff is now covered under the LPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (MSGP).

IX. Permit Limit Rationale:

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. See outfall information descriptions for associated outfall(s) in Section VI. Regulations also require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I/40 CFR 122.44(i)].

Cleco Power, LLC, Teche Power Station is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation
 Steam Electric Power Generating

Guideline
 40 CFR 423

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1. Outfall T01 - once-through non-contact cooling water from Units 1 and 2; previously monitored effluent from Outfalls T02, T03, T09 and T10; miscellaneous maintenance wastewaters, and stormwater runoff

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg	Daily Max.			
Flow – MGD (*1)	Report	Report	Continuous	Record	LAC 33:IX.2707.1.1.b.
Temperature (*2)	106° F	113° F	Continuous	Record	Previous permit
Total Residual Chlorine	---	0.2 mg/L	1/week (*3)	Grab	Previous permit; 40 CFR 423.13(b) (1) and (2).
Total Residual Chlorine	---	9.9 lbs/day	1/week (*3)	Grab	Previous permit
pH, standard units	6.0 (min)	9.0 (max)	1/week	Grab	Previous permit; 40 CFR 423.12(b) (1)
Biomonitoring (*4)	See Section D	See Section D	1/quarter	24-hr. Composite	See <u>Biomonitoring Requirements</u> section D

- (*1) The use of pump rating curves to obtain the continuous flow measurement is adequate to monitor this discharge.
- (*2) Temperature shall be monitored when Units 1 and 2 are operating and the circulating pumps are running.
- (*3) Total Residual Chlorine shall only be monitored during periods of chlorination or other biocide usage. Sample shall be representative of periods of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
- (*4) For the purpose of fulfilling the WET testing requirements, flow-weighted composite samples shall be collected from Outfalls T01 and T05 when Units 1, 2, and 3 are operating. However, if there is no discharge of once-through non-contact cooling water from Outfall T01 during the specified monitoring period then flow-weighted samples shall be collected from Outfall T05 only to fulfill the WET testing requirements. The permittee shall maintain a log to record the dates of commencement and cessation of operations for Units 1 and 2.

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2. Outfall T02 (internal) - low volume wastewaters from Units 1 and 2, miscellaneous maintenance wastewaters, and *de minimis* stormwater runoff

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg.	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.1.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)

3. Outfall T03 (internal) - low volume wastewater including but not limited to boiler blowdown from Units 1 and 2

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg.	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.1.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)

4. Outfall T04 (internal) - low volume wastewater including but not limited to filter backwash, demineralizer wastewater, neutralization tank wastewater, and well water from sample coolers; and miscellaneous maintenance wastewater

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg.	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.1.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)

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5. Outfall T05 - once-through non-contact cooling water from Unit 3 (under normal conditions, the boiler blowdown discharges from T07 become the make-up water for the once-through cooling water); previously monitored effluent from Outfalls T04, T08, and T09; miscellaneous maintenance wastewaters, and stormwater runoff

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg	Daily Max.			
Flow – MGD (*1)	Report	Report	Continuous	Record	LAC 33:IX.2707.1.1.b.
Temperature (*2)	116° F	122° F	Continuous	Record	Previous permit
Total Residual Chlorine	---	0.2 mg/L	1/week (*3)	Grab	Previous permit; 40 CFR 423.13(b) (1) and (2).
Total Residual Chlorine	---	28.4 lbs/day	1/week (*3)	Grab	Previous permit
pH, standard units	6.0 (min)	9.0 (max)	1/week	Grab	Previous permit; 40 CFR 423.12(b)(1)
Biomonitoring (*4)	See Section D	See Section D	1/quarter	24-hr. Composite	See <u>Biomonitoring Requirements</u> section D

(*1) The use of pump rating curves to obtain the continuous flow measurement is adequate to monitor this discharge.

(*2) Temperature shall be monitored when Unit 3 is operating and the circulating pumps are running.

(*3) Total Residual Chlorine shall only be monitored during periods of chlorination or other biocide usage. Sample shall be representative of periods of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

(*4) For the purpose of fulfilling the WET testing requirements, flow-weighted composite samples shall be collected from Outfalls T01 and T05 when Units 1, 2, and 3 are operating. However, if there is no discharge of once-through non-contact cooling water from Outfall T01 during the specified monitoring period then flow-weighted samples shall be collected from Outfall T05 only to fulfill the WET testing requirements.

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6. Outfall T06 - low volume wastewater from Unit 3, miscellaneous maintenance wastewater, previously monitored effluent from T09, and de minimis stormwater runoff

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.I.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
pH, standard units	6.0 (min)	9.0 (max)	1/week	Grab	Previous permit; 40 CFR 423.12(b)(1)

7. Outfall T07 - low volume wastewater from Unit 3 including but not limited to boiler blowdown, miscellaneous maintenance wastewater, and previously monitored effluent from T09

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.I.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(3)
pH, standard units (*1)	6.0 (min)	9.0 (max)	1/week	Grab	Previous permit; 40 CFR 423.12(b)(1)

(*1) pH shall be monitored during periods when discharges are routed directly to the Charenton Canal.

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8. Outfall T08 (internal) - metal cleaning wastewater

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg.	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.1.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(5)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	Previous permit; 40 CFR 423.12(b)(5)
Total Iron	1.0 mg/L	1.0 mg/L	1/week	Grab	Previous permit; 40 CFR 423.13(e)
Total Copper	1.0 mg/L	1.0 mg/L	1/week	Grab	Previous permit; 40 CFR 423.13(e)

9. Outfall T09 - hydrostatic test wastewaters

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Basis
	Monthly Avg.	Daily Max.		
Flow - MGD	Report	Report	1/discharge event (*1)	LPDES General Permit LAG670000
TSS (*2)	---	90 mg/L	1/discharge event (*1)	LPDES General Permit LAG670000
Oil and Grease	---	15 mg/L	1/discharge event (*1)	LPDES General Permit LAG670000
TOC	---	50 mg/L	1/discharge event (*1)	LPDES General Permit LAG670000
Total BTEX	---	250 µg/L	1/discharge event (*1)	LPDES General Permit LAG670000
Lead	---	50 µg/L	1/discharge event (*1)	LPDES General Permit LAG670000
Benzene	---	50 µg/L	1/discharge event (*1)	LPDES General Permit LAG670000

- (*1) Flow, TSS, and Oil and Grease shall be measured on discharges from all new and existing pipelines, flowlines, vessels, or tanks. In addition, Total Organic Carbon (TOC) shall be measured on discharges from existing pipelines, flowlines, vessels, or tanks which have previously been in service; i.e., those which are not new. Benzene, Total BTEX, and Total Lead shall be measured on discharges from existing pipelines, flowlines, vessels, or tanks which have been used for the storage or transportation of liquid or gaseous petroleum hydrocarbons.

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- (*2) The background concentration of Total Suspended Solids (TSS) will be allowed in the discharge if the effluent is being returned to the same water source from which the intake water was obtained. In these cases, the permit limitations will be 90 mg/L plus the concentration of TSS in the intake water. The TSS concentration of the intake water shall be reported on the Discharge Monitoring Report (DMR) along with the concentration of TSS in the effluent.

Effluent limitations and monitoring frequencies are based on LPDES General Permit LAG670000, Hydrostatic Test Wastewater, effective February 1, 2008.

10. Outfall T10 (internal) - low volume wastewater from Unit 4 including but not limited to maintenance washdown water and de minimis stormwater runoff.

Parameter	Effluent Limitations Units (Specify)		Monitoring Frequency	Sample Type	Basis
	Monthly Avg.	Daily Max.			
Flow - MGD	Report	Report	1/week	Estimate	LAC 33:IX.2707.1.1.b.
Total Suspended Solids	30 mg/L	100 mg/L	1/week	Grab	40 CFR 423.12(b)(3)
Oil and Grease	15 mg/L	20 mg/L	1/week	Grab	40 CFR 423.12(b)(3)

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, October 7, 2009. Calculations, results, and documentation are given in Appendix B.

In accordance with 40 CFR § 122.44 (d)(1)/LAC 33:IX.2707.D.1, the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, October 7, 2009, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

POLLUTANT(S)
None

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Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, October 7, 2009. They are also listed in Part II of the permit.

TMDL Waterbodies

The discharges from Teche Power Station are to the Charenton Canal. Subsegment 060601 Charenton Canal – from Charenton Floodgate to ICCW; includes Bayou Teche from Charenton to Baldwin, is not listed on LDEQ's Final 2006 303(d) list as impaired. However, subsegment 060601 was previously listed as impaired for suspended solids/turbidity/siltation, nutrients, and organic enrichment/low DO for which the below TMDL's have been developed. Turbidity has been delisted as an impairment to this subsegment. The Department of Environmental Quality reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving water bodies based upon additional TMDL's and/or water quality studies. The DEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDL's for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as necessary to achieve compliance with water quality standards.

The following TMDL's have been established for subsegment 060601:

Suspended Solids – *TMDL for TSS, Turbidity, and Siltation for the Bayou Teche Watershed*, May 2, 2002.

As per the TMDL, "Point source loads do not represent a significant source of TSS as defined in this TMDL. Point sources discharge primarily organic TSS, which does not contribute to habitat impairment resulting from sedimentation. Because the point sources are minor contributors, and dischargers of organic suspended solids from point sources are already addressed by LDEQ through their permitting of point sources to maintain water quality standards for DO, the wasteload allocation for point source contributions were set to zero. This TMDL only addresses the landform contribution of TSS/sediment and does not address the insignificant point source contributions." Therefore, TSS limits will remain as in the previous permit.

Organic enrichment/low DO and nutrients – *Charenton Drainage and Navigation Canal and West Cote Blanche Bay TMDLs for Dissolved Oxygen and Nutrients*, May 2, 2002.

In the Charenton Drainage and Navigation Canal and West Cote Blanche Bay TMDLs for Dissolved Oxygen and Nutrients, this point source was not included in the model because it was assumed to have a negligible oxygen demand. LDEQ's position regarding water quality criteria for nutrients is that when oxygen-demanding substances are controlled and limited in order to ensure that the dissolved oxygen criterion is supported, nutrients are also controlled and limited. See *In The Matter of Sierra Club and Louisiana Environmental Network Request for Nutrient Limits*. Docket No. AHD-DR-96001. LDEQ April 29, 1996. DO serves as the indicator for the water quality criteria and for assessment of use support. For the TMDLs in this report, the nutrient loading required to maintain the DO standard is the nutrient TMDL. Therefore, no oxygen-demanding or nutrient limitations will be placed at any of the external outfalls established in this draft permit.

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The reopener clause located in Part II of the permit allows for more stringent or additional limitations or requirements to be placed in the permit, if needed, based upon additional water quality studies and/or TMDLs.

D. Biomonitoring Requirements

The provisions of this section apply to Outfalls T01 and T05:

It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. See Appendix C for the Biomonitoring Recommendation.

The biomonitoring procedures stipulated as a condition of this permit for Outfall(s) T01, T05 are as follows:

TOXICITY TESTS

FREQUENCY

Chronic static renewal 7-day
 survival and reproduction test
 using Ceriodaphnia dubia
 [Method 1002.0]

1/quarter

Chronic static renewal 7-day
 larval survival and growth test
 using fathead minnow (Pimephales
promelas) [Method 1000.0]

1/quarter

The draft permit additionally requires the reporting of the coefficient of variation (larger of the low flow and control dilutions) for each test species.

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001, March 1989." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to provide data representative of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48 and/or to assure compliance with permit limitations following regulations listed at LAC 33:IX.2707.1.1/40 CFR 122.44(i)(1).

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first

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full report to the Office of Environmental Compliance. The full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

Dilution Series

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 23%, 31%, 42%, 55%, and 74% (with 55% defined as the critical biomonitoring dilution). Toxicity tests shall be performed on the flow-weighted composite samples of Outfalls T01 and T05. The biomonitoring frequency shall be once per quarter for the term of the permit. See Biomonitoring Recommendation, Appendix C.

E. 316(B) REQUIREMENTS

- July 6, 2004, EPA promulgated 'Phase II' regulations in accordance with section 316(b) of the Clean Water Act (CWA).
- January 25, 2007, the Second U.S. Circuit Court of Appeals remanded several provisions of the Phase II rule.
- March 20, 2007, EPA issued a memo saying, "the rule should be considered suspended".
- July 9, 2007, Federal Register notice suspending all parts of the Phase II regulations except 40 CFR 125.90(b) [LAC 33:IX.4731.B]

According to EPA, 316(b) 'Phase II' regulations are under complete reconsideration at this time. LAC 33:IX.4731.B provides for regulating the cooling water intake structure (CWIS) for existing facilities on a case-by-case basis using best professional judgment.

This facility was issued a number of previous NPDES and/or LPDES permits and has been withdrawing once-through, non-contact cooling water without any identified problems since 1953. LDEQ has no information which either identifies or verifies any past or current adverse environmental impacts associated with the withdrawal of the applicable cooling water. Two cooling water intake structures are located on the western banks of the Charenton Canal. Cooling water for Units 1 and 2 is withdrawn from the Charenton Canal through an inlet channel and gate structure. The intake channel sits back from the Charenton Canal and culminates at the cooling water screen and pump crib house. The crib house contains a 3/8 inch mesh traveling water screen. CWIS for Units 1 and 2 are operated as needed to meet energy demands. The Unit 3 CWIS consists of a sheet pile flume and a screen and pump structure. The pump structure for Unit 3 consists of two 3/8 inch mesh traveling water screens which are set back from the shoreline. Water from the Charenton Canal enters the Unit 3 CWIS through four openings in the front face of the flume, which are located below normal water levels. LDEQ has made the determination that this CWIS represents the best technology available. This determination is based on current information available and will be re-evaluated either upon promulgation of revised 316(b) Phase II regulations or upon evaluation of the environmental impacts of their CWIS as described below. The revised 316(b) Phase II regulation will supersede any requirements contained in the applicable permit.

A permit modification, effective January 7, 2008, required Cleco to characterize the fish/shellfish in the vicinity of the CWIS and assess impingement mortality and entrainment (IM&E). The assessment results were submitted to LDEQ on January 30, 2009 (EDMS document 39741658). In this permit, LDEQ will require an assessment of the cooling water system as described in the following paragraphs:

The permittee shall comply with effective regulations promulgated in accordance with section 316b of the CWA for cooling water intake structures. The permittee shall submit the cooling water system assessment results to LDEQ no later than four (4) years from the effective date of this permit. Based on

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the information submitted to LDEQ, the permit may be reopened to incorporate limitations and/or requirements for the CWIS.

The assessment of the cooling water system must include the following:

1. An assessment of the cooling water system which includes a discussion or description of how structural or operational actions currently in place reduce adverse environmental impacts caused by your CWIS, and a discussion of additional structural or operational actions, if any, that have been reviewed or evaluated as possible measures to further reduce environmental impacts caused by your CWIS.

X. Compliance History/DMR Review:

- A. Enforcement Actions - LDEQ records were reviewed for the period from November, 2007 through November, 2009. No records of compliance actions were found. An incident report dated November 6, 2009 was submitted to LDEQ by Cleco concerning a leak of 30 to 70 gallons of oil from a reserve oil tank turbine line. The incident did not result in any off-site release of the material.
- B. DMRs - A file review of all monitoring reports for the last two years revealed that there were no effluent violations.
- C. Inspections - The most recent inspection was conducted on March 18, 2009. All areas evaluated were found to be satisfactory.

XI. "IT" Questions - Applicant's Responses

The "IT" Questions along with the applicant's responses can be found in the Permit Application addendum received October 8, 2009. See Appendix D.

XII. Endangered Species:

The receiving waterbody, Subsegment 060601 of the Vermilion-Teche River Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated January 5, 2010, from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

XIII. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

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XIV. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in the application.

XV. Variances:

No requests for variances have been received by this Office.

XVI. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

Appendix A
Previous LPDES Permit
Effluent Limitations

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T01, the continuous discharge of once-through non-contact cooling water from Units 1 and 2; previously monitored effluent from Internal Outfalls T02, T03, and T09; miscellaneous wastewater(*8); and stormwater runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
--------------------------------	------------------------------	--	--	--	--------------------------------	--

STORET Code	(lbs/day, UNLESS STATED) (mg/L, UNLESS STATED)				Measurement Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-MGD(*10)	50050	71	---	---	Continuous	Record
Temperature(*11)	00011	---	106°F(*2)	113°F(*3)	Continuous	Record
Total Residual Chlorine(*4)	50060	---	9.9	0.2	1/week	Grab
pH Minimum/Maximum Values (Standard Units)	00400	---	6.0 (*1) (Min)	9.0 (*1) (Max)	1/week	Grab

WHOLE EFFLUENT (CHRONIC)TOXICITY TESTING(*5,*9) STORET

(Percent %, UNLESS STATED)

STORET Code	Monthly Avg 7-Day Minimum		Measurement Frequency		Sample Type(*6)
	Minimum	Minimum	Frequency		
NOEC, Pass/Fail [0/1], TLP6C Lethality, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite
NOEC, Value (%), TOP6C Lethality, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite
NOEC, Value (%), TPP6C Growth, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite
NOEC, Pass/Fail [0/1], TWP6C Growth, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite
NOEC, Value (%), TQP6C Coefficient of Variation, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite
NOEC, Pass/Fail [0/1], TLP3B Lethality, Static Renewal, 7-Day Chronic, <u>Ceriodaphnia dubia</u>	---	---	Report	Report	1/quarter(*7) 24-hr. Composite

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall T01, continued)

<u>Effluent Characteristic</u>		<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>		
<u>WHOLE EFFLUENT (CHRONIC)</u>		(Percent %, UNLESS STATED)				
<u>TOXICITY TESTING</u> (*5,*9) STORET		Monthly Avg 7-Day		Measurement	Sample	
Code		Minimum	Minimum	Frequency	Type(*6)	
NOEC, Value (%), TOP3B --- ---		Report	Report	1/quarter(*7)	24-hr. Composite	
Lethality, Static Renewal, 7-Day Chronic						
<u>Ceriodaphnia dubia</u>						
NOEC, Value (%), TPP3B --- ---		Report	Report	1/quarter(*7)	24-hr. Composite	
Reproduction, Static Renewal, 7-Day Chronic,						
<u>Ceriodaphnia dubia</u>						
NOEC, Pass/Fail (0/1), TWP3B --- ---		Report	Report	1/quarter(*7)	24-hr. Composite	
Growth, Static Renewal, 7-Day Chronic,						
<u>Ceriodaphnia dubia</u>						
NOEC, Value (%), TQP3B --- ---		Report	Report	1/quarter(*7)	24-hr. Composite	
Coefficient of Variation, Static Renewal, 7-Day Chronic,						
<u>Ceriodaphnia dubia</u>						

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T01, at the point where the combined effluent discharges to the Charenton Canal (Latitude 29°49'18", Longitude 91°32'38").

FOOTNOTE(S):

- (*1) The permittee shall report on the Discharge Monitoring Report both the minimum and maximum instantaneous pH values measured.
- (*2) See Part II, Paragraph L.
- (*3) Instantaneous maximum.
- (*4) Total Residual Chlorine shall only be monitored during periods of chlorination or other biocide usage.
- (*5) Part II, Paragraph V for Biomonitoring requirements.
- (*6) See Part II, Paragraph V, Section 3.d.
- (*7) If there are no significant lethal or sub-lethal effects demonstrated to the species at or below the critical dilution during the first four quarters of testing, the permittee may certify fulfillment of the WET testing requirements in writing to the permitting authority and WET testing may be reduced to not less than once per six months for the more sensitive species and not less than once per year for the less sensitive species for the remainder of the life of the permit. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both species reverts to once per quarter until the permit is reissued. See Part II, Paragraph V.4. (Monitoring Frequency Reduction).
- (*8) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall T01, continued)

- (*9) For the purpose of fulfilling the WET Testing requirements, flow-weighted composite samples shall be collected from Outfalls T01 and T05 when Units 1, 2, and 3 are operating. However, if there is no discharge of once-through non-contact cooling water from Outfall T01 during the specified monitoring period then flow-weighted samples shall be collected from Outfall T05 only to fulfill the WET Testing requirements. The permittee shall maintain a log to record the dates of commencement and cessation of operations for Units 1 and 2.
- (*10) The use of pump rating curves to obtain the continuous flow measurement are adequate to monitor this discharge.
- (*11) Temperature shall be monitored when Units 1 and 2 are operating and the circulating pumps are running.

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T02 (Internal), the intermittent discharge of low volume wastewater from Units 1 and 2 and miscellaneous wastewater(*2).

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>		<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)			
STORET Code		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency(*1)	Sample Type
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T02 (Internal), at the point where the combined effluent discharges prior to combining with the effluent at Outfall T01 (Latitude 29°49'22", Longitude 91°32'35").

FOOTNOTE(S):

(*1) When discharging.

(*2) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T03 (Internal), the intermittent discharge of boiler blowdown, low volume wastewater from Units 1 and 2, and miscellaneous wastewater(*2).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	STORET Code	Discharge Limitations				Monitoring Requirements	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)		Measurement Frequency(*1)	Sample Type
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T03 (Internal), at the point where the combined effluent discharges prior to combining with the effluent at Outfall T01 (Latitude 29°49'21", Longitude 91°32'37").

FOOTNOTE(S):

(*1) When discharging.

(*2) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T04 (Internal), the intermittent discharge of low volume wastewater (consisting of filter backwash, demineralizer wastewater, neutralization tank wastewater, and well water from sample coolers) and miscellaneous wastewater(*2).

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>		<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)			
STORET Code		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency(*1)	Sample Type
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T04 (Internal), at the point where the combined effluent discharges prior to combining with the effluent at Outfall T05 (Latitude 29°49'23", Longitude 91°32'42").

FOOTNOTE(S):

(*1) When discharging.

(*2) Miscellaneous wastewater is comprised of sample table drains, fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

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During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T05, the continuous discharge of once-through non-contact cooling water from Unit 3 (under normal operations, the boiler blowdown discharges from Outfall T07 become the make-up water for the once-through cooling water), previously monitored effluent from Internal Outfalls T04, T08, and T09, stormwater runoff, and miscellaneous wastewater(*8).

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>	<u>Monitoring Requirements</u>	
		Measurement Frequency	Sample Type
	(lbs/day, UNLESS STATED) (mg/L, UNLESS STATED)		
	STORET Code Monthly Average Daily Maximum Monthly Average Daily Maximum		
Flow-MGD(*10)	50050 204 204 --- ---	Continuous	Record
Temperature(*11)	00011 --- --- 116°F(*2) 122°F(*3)	Continuous	Record
Total Residual Chlorine(*4)	50060 --- 28.4 --- 0.2	1/week	Grab
pH Minimum/Maximum Values (Standard Units)	00400 --- --- 6.0 (*1) (Min) 9.0 (*1) (Max)	1/week	Grab
<u>WHOLE EFFLUENT (CHRONIC)</u>		(Percent %, UNLESS STATED)	
<u>TOXICITY TESTING(*5, *9) STORET Code</u>		Monthly Avg 7-Day Minimum	Measurement Frequency Sample Type(*6)
NOEC, Pass/Fail [0/1], TLP6C	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Lethality, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>			
NOEC, Value (%), TOP6C	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Lethality, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>			
NOEC, Value (%), TPP6C	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Growth, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>			
NOEC, Pass/Fail [0/1], TWP6C	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Growth, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>			
NOEC, Value (%), TOP6C	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Coefficient of Variation, Static Renewal, 7-Day Chronic, <u>Pimephales promelas</u>			
NOEC, Pass/Fail [0/1], TLP3B	--- --- Report Report	1/quarter(*7)	24-hr. Composite
Lethality, Static Renewal, 7-Day Chronic, <u>Ceriodaphnia dubia</u>			

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EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall T05, continued)

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
<u>WHOLE EFFLUENT (CHRONIC)</u>	(Percent %, UNLESS STATED)			
<u>TOXICITY TESTING</u> (+5,+9)STORET	Monthly Avg	7-Day	Measurement	Sample
Code	Minimum	Minimum	Frequency	Type(+6)
NOEC, Value [%], TOP3B --- ---	Report	Report	1/quarter(+7)	24-hr. Composite
Lethality, Static Renewal, 7-Day Chronic <u>Ceriodaphnia dubia</u>				
NOEC, Value [%], TPP3B --- ---	Report	Report	1/quarter(+7)	24-hr. Composite
Reproduction, Static Renewal, 7-Day Chronic. <u>Ceriodaphnia dubia</u>				
NOEC, Pass/Fail [0/1], TWP3B --- ---	Report	Report	1/quarter(+7)	24-hr. Composite
Growth, Static Renewal, 7-Day Chronic, <u>Ceriodaphnia dubia</u>				
NOEC, Value [%], TOP3B --- ---	Report	Report	1/quarter(+7)	24-hr. Composite
Coefficient of Variation, Static Renewal, 7-Day Chronic. <u>Ceriodaphnia dubia</u>				

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T05, at the point where the combined effluent discharges to the Charenton Canal (Latitude 29°49'10", Longitude 91°32'45").

FOOTNOTE(S):

- (+1) The permittee shall report on the Discharge Monitoring Report both the minimum and maximum instantaneous pH values measured.
- (+2) See Part II, Paragraph L.
- (+3) Instantaneous maximum.
- (+4) Total Residual Chlorine shall only be monitored during periods of chlorination or other biocide usage.
- (+5) Part II, Paragraph V for Biomonitoring requirements.
- (+6) See Part II, Paragraph V, Section 3.d.
- (+7) If there are no significant lethal or sub-lethal effects demonstrated to the species at or below the critical dilution during the first four quarters of testing, the permittee may certify fulfillment of the WET testing requirements in writing to the permitting authority and WET testing may be reduced to not less than once per six months for the more sensitive species and not less than once per year for the less sensitive species for the remainder of the life of the permit. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both species reverts to once per quarter until the permit is reissued. See Part II, Paragraph V.4. (Monitoring Frequency Reduction).
- (+8) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

PART I

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Permit No. LA0002887

AI No. 2432

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall T05, continued)

- (*9) For the purpose of fulfilling the WET Testing requirements, flow-weighted composite samples shall be collected from Outfalls T01 and T05 when Units 1, 2, and 3 are operating. However, if there is no discharge of once-through non-contact cooling water from Outfall T01 during the specified monitoring period then flow-weighted samples shall be collected from Outfall T05 only to fulfill the WET Testing requirements.
- (*10) The use of pump rating curves to obtain the continuous flow measurement are adequate to monitor this discharge.
- (*11) Temperature shall be monitored when Unit 3 is operating and the circulating pumps are running.

PART I

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Permit No. LA0002887

AI No. 2432

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T06, the intermittent discharge of low volume wastewater from Unit 3, previously monitored effluent from Internal Outfall T09, and miscellaneous wastewater(*2).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	STORET Code	Discharge Limitations				Monitoring Requirements	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)		Measurement Frequency(*1)	Sample Type
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab
pH Minimum/Maximum	00400	---	---	6.0 (*3)	9.0 (*3)	1/week	Grab
Values (Standard Units)				(Min)	(Max)		

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T06, at the point where the combined effluent discharges from the oil/water separator prior to discharging to the Charenton Canal (Latitude 29°49'21", Longitude 91°32'32").

FOOTNOTE(S):

(*1) When discharging.

(*2) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

(*3) The permittee shall report on the Discharge Monitoring Report both the minimum and maximum instantaneous pH values measured.

PART I

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Permit No. LA0002887

AI No. 2432

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T07, the intermittent discharge of boiler blowdown, low volume wastewater from Unit 3, previously monitored effluent from Internal Outfall T09, and miscellaneous wastewater(*2).

Under normal operations, the boiler blowdown discharges become the make-up water for once-through non-contact cooling water at Outfall T05. Therefore, no discharge occurs from this outfall when Unit 3 is in operation and the circulating pumps are running for the once-through non-contact cooling water. However, when Unit 3 is not in operation, boiler blowdown discharges are routed via this outfall.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>		<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)		Measurement Frequency(*1)	Sample Type
STORET Code		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab
pH Minimum/Maximum(*3)	00400	---	---	6.0 (*4)	9.0 (*4)	1/week	Grab
Values (Standard Units)				(Min)	(Max)		

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T07, at the point where the combined effluent discharges to the Charenton Canal (Latitude 29°49'20", Longitude 91°32'32").

FOOTNOTE(S):

(*1) When discharging.

(*2) Miscellaneous wastewater is comprised of fire system test water, eye wash station and safety shower water, steam condenser water, and general facility washwater.

(*3) pH shall be monitored only during periods when discharges are routed directly to the Charenton Canal.

(*4) The permittee shall report on the Discharge Monitoring Report both the minimum and maximum instantaneous pH values measured.

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Permit No. LA0002887

AI No. 22432

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T08 (Internal), the intermittent discharge of chemical metal cleaning wastewater.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>STORET Code</u>	<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)		Measurement	Sample
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Frequency(*1)	Type
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	30	100	1/week	Grab
Oil & Grease	00556	---	---	15	20	1/week	Grab
Total Iron	01045	---	---	1.0	1.0	1/week	Grab
Total Copper	01042	---	---	1.0	1.0	1/week	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall T08, at the point where chemical metal cleaning wastewater discharges prior to combining with the effluent at Outfall T05 (Latitude 29°49'15", Longitude 91°32'46").

FOOTNOTE(S):

(*1) When discharging.

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Permit No. LA0002887

AI No. 2432

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall T09 (Internal), the intermittent discharge of hydrostatic test wastewater

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic		Discharge Limitations		Monitoring Requirements			Sample Type
		(lbs/day, UNLESS STATED)		(mg/L, UNLESS STATED)		Measurement Frequency(*1)	
	STORET Code	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-MGD	50050	Report	Report	---	---	Daily	Estimate
TSS	00530	---	---	---	90	1/event	Grab
Oil & Grease	00556	---	---	---	15	1/event	Grab
TOC	00680	---	---	---	50	1/event	Grab
Benzene(*2)	34030	---	---	---	50 µg/L	1/event	Grab
Total BTEX(*2), (*3)	49491	---	---	---	250 µg/L	1/event	Grab
Total Lead(*2)	01051	---	---	---	50 µg/L	1/event	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Internal Outfall T09, at the point of discharge from the vessel or pipeline being tested prior to combining with any other waters.

May be discharged through any final outfall.

FOOTNOTES:

- (*1) When discharging.
- (*2) Benzene, Total BTEX, and Lead shall be measured on discharges from pipelines or vessels which have been used for the storage or transportation of liquid or gaseous petroleum hydrocarbons. Accordingly, Flow, TSS, and Oil & grease are the only testing requirements for new pipe or vessels.
- (*3) BTEX shall be measured as the sum of benzene, toluene, ethylbenzene, and total xylene (including ortho-, meta-, and para-xylene) as quantified by EPA methods 601, 602, 624, or 1624.

Appendix B
Water Quality
Calculations

MEMORANDUM

TO: Lisa Kemp

FROM: Todd Franklin

DATE: November 4, 2009

RE: Stream Flow and Water Quality Characteristics for the Charenton Drainage and Navigation Canal, receiving waters for Cleco Power, LLC / Teche Power Station (Permit No. LA0002887, AI 2432)

The discharge flows into the Charenton Drainage and Navigation Canal. Ambient data for hardness and TSS was taken from ambient monitoring station #0674 (Charenton Canal at LA Highway 82, one mile south of Baldwin and 2.5 miles northwest of Franklin). The following results were obtained:

Average hardness = 106.6 mg/l
15th percentile TSS = 22.05 mg/l

Tidal flow calculations were performed for this site and documented in a memo dated January 5, 2004, from George Chike to Sonja Loyd (EDMS Document # 34183121). According to that memo, tidal flow calculations were based on a tidal prism done on a portion of Bayou Teche, Charenton Canal, and Lake Fausse Pointe above the discharge point. From USGS gage No. 091360000, the average tidal influence was determined to be approximately 2 inches. From the calculations, the critical flow was determined to be 989.4 cfs and the harmonic mean flow was determined to be 2,968.2 cfs. They have been no significant changes to the hydrology in this area; therefore, the above-mentioned values for the critical flow and harmonic mean flow should be utilized for permit limitation calculations.

If you have additional questions or comments, please contact me at 2-3138.

WQSMODN.WK4 Date: 11/18 Appendix B-1
 Developer: Bruce Fielding Time: 10:32 AM
 Software: Lotus 4.0 LA0002887/AI2432
 Revision date: 03/11/09

Page 1

Water Quality Screen for Cleco Teche Power Station

Input variables:

Receiving Water Characteristics:

Receiving Water Name= Charenton Canal

Critical flow (Qr) cfs= 989.4

Harm. mean/avg tidal cfs= 2968.2

Drinking Water=1 HHNPCR=2

MM=1, BW=2, O=n

Rec. Water Hardness= 106.6

Rec. Water TSS= 22.05

Fisch/Specific=1, Stream=0

Diffuser Ratio=

Effluent Characteristics:

Permittee= Cleco Teche Power Station

Permit Number= LA0002887

Facility flow (Qef),MGD= 0.158

Outfall Number = T06

Eff. data, 2-lbs/day

MQL, 2-lbs/day

Effluent Hardness= N/A

Effluent TSS= N/A

WQBL ind. 0=y, 1=n

Acute/Chr. ratio 0=n, 1=y 1

Aquatic, acute only=y, 0=n

Page Numbering/Labeling

Appendix Appendix B-1

Page Numbers 1=y, 0=n 1

Input Page # 1=y, 0=n 1

Fischer/Site Specific inputs:

Pipe=1, Canal=2, Specific=3

Pipe width, feet

ZID plume dist., feet

MZ plume dist., feet

HHnc plume dist., feet

HHc plume dist., feet

Fischer/Site specific dilutions:

Dilution = ---

F/specific MZ Dilution = ---

F/specific HHnc Dilution= ---

F/specific HHc Dilution= ---

Dilution:

ZID Fs = 0.0333333

MZ Fs = 0.3333333

Critical Qr (MGD)= 639.44922

Harm. Mean (MGD)= 1918.3477

ZID Dilution = 0.0073581

MZ Dilution = 0.0007407

HHnc Dilution= 0.000247

HHc Dilution= 8.236E-05

ZID Upstream = 134.9049

MZ Upstream = 1349.049

MZhhnc Upstream= 4047.147

MZhhc Upstream= 12141.441

ZID Hardness= ---

MZ Hardness= ---

ZID TSS= ---

MZ TSS= ---

Multipliers:

WLAa --> LTAA 0.32

WLAc --> LTAc 0.53

LTA a,c-->WQBL avg 1.31

LTA a,c-->WQBL max 3.11

LTA h --> WQBL max 2.38

WQBL-limit/report 2.13

WLA Fraction 1

WQBL Fraction 1

Conversions:

ug/L-->lbs/day Qef 0.0013177

ug/L-->lbs/day Qeo 0

ug/L-->lbs/day Qr 8.251596

lbs/day-->ug/L Qeo 758.88656

lbs/day-->ug/L Qef 758.88656

diss-->tot 1=y0=n 1

Cu diss->tot1=y0=n 1

cfs-->MGD 0.6463

Receiving Stream:

Default Hardness= 25

Default TSS= 10

99 Crit., 1=y, 0=n 1

Old MQL=1, New=0 1

Toxicity Dilution Series:

Biomonitoring dilution: 0.0074071

Dilution Series Factor: 0.75

Percent Effluent

Dilution No. 1 0.9881

Dilution No. 2 0.74071

Dilution No. 3 0.55551

Dilution No. 4 0.41671

Dilution No. 5 0.31251

Partition Coefficients; Dissolved-->Total

METALS

FW

Total Arsenic 2.1065258

Total Cadmium 3.6755734

Chromium III 5.1723226

Chromium VI 1

Total Copper 3.3244466

Total Lead 6.1980416

Total Mercury 2.0807055

Total Nickel 2.8529418

Total Zinc 4.1617869

Aquatic life, Dissolved

Metal Criteria, ug/L

METALS

ACUTE CHRONIC

Arsenic 339.8 150

Cadmium 34.085136 1.0809163

Chromium III 578.22689 187.57082

Chromium VI 15.712 10.582

Copper 19.569818 12.973514

Lead 69.230697 2.6978209

Mercury 1.734 0.012

Nickel 1494.0452 165.92571

Zinc 120.81601 110.32334

Site Specific Multiplier Values:

CV = ---

N = ---

WLAa --> LTAA ---

WLAc --> LTAc ---

LTA a,c-->WQBL avg ---

LTA a,c-->WQBL max ---

LTA h --> WQBL max ---

Appendix B-1
Cleco Teche Power Station
LA0002887

Page 2

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic	Cu Effluent		Effluent	MQL Effluent		95th %	Numerical Criteria			HM
Parameters	Instream	/Tech	/Tech	1-No	95%	estimate	Acute	Chronic	HHNDW	Carcinogen
	Conc.	(Avg)	(Max)	0-95	%	Non-Tech	FW	FW		Indicator
	ug/L	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L	ug/L	"C"
NONCONVENTIONAL										
Total Phenols (4AAP)				5			700	350	50	
3-Chlorophenol				10						
4-Chlorophenol				10			383	192		
2,3-Dichlorophenol				10						
2,5-Dichlorophenol				10						
2,6-Dichlorophenol				10						
3,4-Dichlorophenol				10						
2,4-Dichlorophenoxy-										
acetic acid (2,4-D)				---						
2-(2,4,5-Trichlorophen-										
oxy) propionic acid										
(2,4,5-TP, Silvex)				---						
METALS AND CYANIDE										
Total Arsenic				10			715.79740	315.97808		
Total Cadmium				1			125.28242	3.9729873		
Chromium III				10			2990.776	970.17681		
Chromium VI				10			15.712	10.582		
Total Copper		13.9		10	0	29.607	65.058816	43.129753		
Total Lead				5			429.09474	16.721206		
Total Mercury				0.2			4.9951433	0.0345685		
Total Nickel				40			4262.4241	473.37638		
Total Zinc		66.4		20	0	141.432	502.8105	459.14224		
Total Cyanide				20			45.9	5.4	12844	
DIOXIN										
2,3,7,8 TCDD: dioxin				1.0E-05					7.2E-07	C
VOLATILE COMPOUNDS										
Benzene				10			2249	1125	12.5	C
Bromoform				10			2930	1465	34.7	C
Bromodichloromethane				10					3.3	C
Carbon Tetrachloride				10			2730	1365	1.2	C
Chloroform				10			2890	1445	70	C
Dibromochloromethane				10					5.08	C
1,2-Dichloroethane				10			11800	5900	6.8	C
1,1-Dichloroethylene				10			1160	580	0.58	C
1,3-Dichloropropylene				10			606	303	162.79	
Ethylbenzene				10			3200	1600	8100	
Methyl Chloride				50			55000	27500		
Methylene Chloride				20			19300	9650	87	C
1,1,2,2-Tetrachloro-										
ethane				10			932	466	1.8	C

Appendix B-1
Cleco Teche Power Station
LA0002887

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(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
Parameters	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A,C,HH	Avg	Max	Avg	Max	WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	T06	T06	T06	T06	
								ug/L	ug/L	lbs/day	lbs/day	
NONCONVENTIONAL												
Total Phenols (4AAP)	95133.429	472517.15	202407.35	30442.697	750434.09	202407.35	30442.697	39879.933	94676.789	52.550586	124.7575	no
3-Chlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
4-Chlorophenol	52051.576	259209.41	---	16656.504	137380.98	---	16656.504	21820.021	51801.729	28.752678	68.260174	no
2,3-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,5-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,6-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
3,4-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,4-Dichlorophenoc-	---	---	---	---	---	---	---	---	---	---	---	no
acetic acid (2,4-D)	---	---	---	---	---	---	---	---	---	---	---	no
2-(2,4,5-Trichlorophen-	---	---	---	---	---	---	---	---	---	---	---	no
oxy) propionic acid	---	---	---	---	---	---	---	---	---	---	---	no
(2,4,5-TP, Silvex)	---	---	---	---	---	---	---	---	---	---	---	no
METALS AND CYANIDE												
Total Arsenic	97280.384	426586.96	---	31129.723	226091.09	---	31129.723	40779.937	96813.438	53.736538	127.573	no
Total Cadmium	17026.494	5363.7275	---	5448.4782	2842.7756	---	2842.7756	3724.036	8841.0321	4.9072368	11.650005	no
Chromium III	406461.11	1309786.2	---	130067.55	694186.7	---	130067.55	170388.5	404510.09	224.52433	533.03104	no
Chromium VI	2135.3378	14286.218	---	683.30809	7571.6957	---	683.30809	895.13359	2125.0881	1.1795354	2.8002712	no
Total Copper	8841.8117	58227.28	---	2829.3798	30860.458	---	2829.3798	3706.4875	8799.371	4.8841127	11.595107	no
Total Lead	58316.077	22574.447	---	18661.145	11964.457	---	11964.457	15673.439	37209.461	20.653204	49.031651	no
Total Mercury	678.86445	46.669123	---	217.23662	24.734635	---	24.734635	32.402372	76.924715	0.0426973	0.1013652	no
Total Nickel	579284.32	639081.31	---	185370.98	338713.09	---	185370.98	242835.99	576503.75	319.98983	759.67052	no
Total Zinc	68334.411	619864.52	---	21867.011	328528.19	---	21867.011	28645.785	68006.405	37.747124	89.613401	no
Total Cyanide	6238.0349	7290.2645	51994400	1996.1712	3863.8402	51994400	1996.1712	2614.9842	6208.0923	3.445817	8.1805274	no
DIOXIN												
2,3,7,8 TCDD: dioxin	---	---	0.0087426	---	---	0.0087426	0.0087426	0.0087426	0.0208073	1.152E-05	2.742E-05	no
VOLATILE COMPOUNDS												
Benzene	305650.12	1518805.1	151780.51	97808.038	804966.71	151780.51	97808.038	128128.53	304183	168.83753	400.82802	no
Bromoform	398201.35	1977821.8	421342.7	127424.43	1048245.5	421342.7	127424.43	166926.01	396289.99	219.96174	522.19924	no
Bromodichloromethane	---	---	40070.055	---	---	40070.055	40070.055	40070.055	95366.731	52.801113	125.66665	no
Carbon Tetrachloride	371020.37	1842816.9	14570.929	118726.52	976692.94	14570.929	14570.929	14570.929	34678.811	19.200405	45.696963	no
Chloroform	392765.16	1950820.8	849970.86	125684.85	1033935	849970.86	125684.85	164647.15	390879.88	216.95885	515.07024	no
Dibromochloromethane	---	---	61683.6	---	---	61683.6	61683.6	61683.6	146806.97	81.281713	193.45048	no
1,2-Dichloroethane	1603677.8	7965289	82568.598	513176.9	4221603.2	82568.598	82568.598	82568.598	196513.26	108.80229	258.94946	no
1,1-Dichloroethylene	157649.68	783028.41	7042.6157	50447.898	415005.06	7042.6157	7042.6157	7042.6157	16761.425	9.2801956	22.086865	no
1,3-Dichloropropylene	82358.369	409064.84	658997.84	26354.678	216804.37	658997.84	26354.678	34524.628	81963.048	45.493793	108.00435	no
Ethylbenzene	434895.68	2160078.4	32789990	139166.62	1144841.5	32789990	139166.62	182308.27	432808.18	240.23125	570.31999	no
Methyl Chloride	7474769.4	37126347	---	2391926.2	19676964	---	2391926.2	3133423.3	7438890.5	4128.9746	9802.3748	no
Methylene Chloride	2622964.5	13027973	1056392.4	839348.65	6904825.5	1056392.4	839348.65	1099546.7	2610374.3	1448.8947	3439.7424	no
1,1,2,2-Tetrachloro-	---	---	---	---	---	---	---	---	---	---	---	no
ethane	126663.37	629122.83	21856.394	40532.277	333435.1	21856.394	21856.394	21856.394	52018.217	28.800607	68.545445	no

[illegible]

(+1)	(+12)	(+13)	(+14)	(+15)	(+16)	(+17)	(+18)	(+19)	(+20)	(+21)	(+22)	(+23)
Toxic Parameters	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting A,C,HH	WQBL Avg	WQBL Max	WQBL Avg	WQBL Max	WQBL Need
	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW						
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	175317.32	870781.6	30356.102	56101.542	461514.25	30356.102	30356.102	30356.102	72247.523	40.000843	95.202006	no
Toluene	172599.22	857281.11	187024390	55231.751	454358.99	187024390	55231.751	72353.594	171770.75	95.341777	226.34575	no
1,1,1-Trichloroethane	717577.87	3564129.3	---	229624.92	1888988.5	---	229624.92	300808.64	714133.49	396.38156	941.02798	no
1,1,2-Trichloroethane	244628.82	1215044.1	83782.842	78281.222	643973.37	83782.842	78281.222	102546.4	243454.6	135.13008	320.80499	no
Trichloroethylene	530029.11	2632595.5	254991.26	169609.31	1395275.6	254991.26	169609.31	222188.2	527484.97	292.78184	695.07749	no
Vinyl Chloride	---	---	434699.38	---	---	434699.38	434699.38	434699.38	1034584.5	572.81207	1363.2927	no
ACID COMPOUNDS												
2-Chlorophenol	35063.464	174156.32	511685.78	11220.308	92302.849	511685.78	11220.308	14698.604	34895.159	19.368645	45.982049	no
2,4-Dichlorophenol	27452.79	136354.95	941598.98	8784.8927	72268.122	941598.98	8784.8927	11508.209	27321.016	15.164598	36.001449	no
BASE NEUTRAL COMPOUNDS												
Benzidine	33976.225	168756.12	2.064215	10872.392	89440.745	2.064215	2.064215	2.064215	4.9128316	0.0027201	0.0064737	no
Hexachlorobenzene	---	---	3.0356102	---	---	3.0356102	3.0356102	3.0356102	7.2247523	0.0040001	0.0095202	no
Hexachlorabutadiene	693.11498	1377.05	1335.6685	221.79679	729.83648	1335.6685	221.79679	290.5538	689.78803	0.3828686	0.9089475	no
PESTICIDES												
Aldrin	407.7147	---	4.8569764	130.4687	---	4.8569764	4.8569764	4.8569764	11.559604	0.0064001	0.0152323	no
Hexachlorocyclohexane (gamma BHC, Lindane)	720.29596	283.51029	2428.4882	230.49471	150.26045	2428.4882	150.26045	196.84119	467.31001	0.2593816	0.6157837	no
Chlordane	326.17176	5.8052106	2.3070638	104.37496	3.0767616	2.3070638	2.3070638	2.3070638	5.4908118	0.0030401	0.0072354	no
4,4'-DDT	149.49539	1.350049	2.3070638	47.838524	0.715526	2.3070638	0.715526	0.937339	2.2252657	0.0012352	0.0029323	no
4,4'-DDE	7135.0072	14175.514	2.3070638	2283.2023	7513.0226	2.3070638	2.3070638	2.3070638	5.4908118	0.0030401	0.0072354	no
4,4'-DDD	4.077147	8.1002939	3.278459	1.304687	4.2931558	3.278459	1.304687	1.70914	4.0575767	0.0022522	0.0053467	no
Dieldrin	32.263823	75.197729	0.607122	10.324423	39.854796	0.607122	0.607122	0.607122	1.4449505	0.0008	0.001904	no
Endosulfan	29.899078	75.602743	2590.8141	9.5677049	40.069454	2590.8141	9.5677049	12.533693	29.755562	0.0165159	0.0392095	no
Endrin	11.742183	50.626837	1052.5182	3.7574986	26.832224	1052.5182	3.7574986	4.9223232	11.685821	0.0064862	0.0153986	no
Heptachlor	70.670547	5.1301862	0.8499709	22.614575	2.7189987	0.8499709	0.8499709	0.8499709	2.0229307	0.00112	0.0026657	no
Toxaphene	99.210576	0.2700098	2.9141858	31.747384	0.1431052	2.9141858	0.1431052	0.1874678	0.4450571	0.000247	0.0005865	no
Other Parameters:												
Fecal Col.(col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	2582.1931	14850.539	---	826.30178	7870.7856	---	826.30178	1082.4553	2569.7985	1.426373	3.3862749	no
Ammonia	---	---	---	---	---	---	---	---	---	---	---	no
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no
TDS	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

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Documentation and Explanation of Water Quality Screen
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

Receiving Water Characteristics:

Receiving Water: Charenton Canal
 Critical Flow, Q_{rc} (cfs): 989.4
 Harmonic Mean Flow, Q_{rh} (cfs): 2968.2
 Segment No.: 060601
 Receiving Stream Hardness (mg/l): 106.6
 Receiving Stream TSS (mg/L): 22.05
 MZ Stream Factor, F_s : 1/3
 Plume distance, P_f : N/A

Effluent Characteristics:

Company: Cleco Power, LLC/Teche Power Station
 Facility flow, Q_e (MGD): 0.158 (Outfall T06)
 Effluent Hardness: N/A
 Effluent TSS: N/A
 Pipe/canal width, P_w : N/A
 Permit Number: LA0002887

Variable Definition:

Q_{rc} , critical flow of receiving stream, cfs
 Q_{rh} , harmonic mean flow of the receiving stream, cfs
 P_f = Allowable plume distance in feet, specified in LAC 33:IX.1115.D
 P_w = Pipe width or canal width in feet
 Q_e , total facility flow, MGD
 F_s , stream factor from LAC.33.IX Chapter 11 (1 for harmonic mean flow)
 C_u , ambient concentration, ug/L
 C_r , numerical criteria from LAC.33.IX.1113, Table 1
 WLA, wasteload allocation
 LTA, long term average calculations
 WQBL, effluent water quality based limit
 ZID, Zone of Initial Dilution in % effluent
 MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 \times F_s + Q_e)}$$

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$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Fs \times Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.8) P_w n^{1/2}}{P_f}$$

$$\text{Critical Dilution} = \frac{(2.38) (P_w^{1/2})}{(P_f)^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f}{(2.8) P_w n^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2}}{2.38 P_w^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rh} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rh} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.8) P_w n^{1/2}}{P_f}$$

$$\text{Critical Dilution} = \frac{(2.38) (P_w^{1/2})}{(P_f)^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^*}{(2.8) P_w n^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2*}}{2.38 P_w^{1/2}}$$

* P_f is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

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If a site specific dilution is used, WLA are calculated by subtracting Cu from Cr and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr - Cu)}{\text{site specific dilution}}$$

Long Term Average Calculations:

$$LTAA = WLAa \times 0.32$$

$$LTAc = WLAc \times 0.53$$

$$LTAh = WLAh$$

WQBL Calculations:

Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:

$$\text{Daily Maximum} = \text{Min}(LTAA, LTAc) \times 3.11$$

$$\text{Monthly Average} = \text{Min}(LTAc, LTAh) \times 1.31$$

If human health LTA is more limiting:

$$\text{Daily Maximum} = LTAh \times 2.38$$

$$\text{Monthly Average} = LTAh$$

Mass Balance Formulas:

$$\text{mass (lbs/day)}: (\text{ug/L}) \times 1/1000 \times (\text{flow, MGD}) \times 8.34 = \text{lbs/day}$$

$$\text{concentration(ug/L)}: \frac{\text{lbs/day}}{(\text{flow, MGD}) \times 8.34 \times 1/1000} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

- (*1) Parameter being screened.
- (*2) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
- (*3) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*4) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*5) Minimum analytical Quantification Levels (MQLs). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present

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on-site and/or in the waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.

- (*6) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.
- (*7) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (*18) - (*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.
- (*8) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(1.1280[\ln(\text{hardness})] - 1.6774)}$
Chromium III	$e^{(0.8190[\ln(\text{hardness})] + 3.6880)}$
Copper	$e^{(0.9422[\ln(\text{hardness})] - 1.3884)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 1.4600)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 3.3612)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Arsenic	$1 + 0.48 \times \text{TSS}^{-0.73} \times \text{TSS}$
Cadmium	$1 + 4.00 \times \text{TSS}^{-1.13} \times \text{TSS}$
Chromium III	$1 + 3.36 \times \text{TSS}^{-0.93} \times \text{TSS}$
Copper	$1 + 1.04 \times \text{TSS}^{-0.74} \times \text{TSS}$
Lead	$1 + 2.80 \times \text{TSS}^{-0.80} \times \text{TSS}$
Mercury	$1 + 2.90 \times \text{TSS}^{-1.14} \times \text{TSS}$
Nickel	$1 + 0.49 \times \text{TSS}^{-0.57} \times \text{TSS}$
Zinc	$1 + 1.25 \times \text{TSS}^{-0.70} \times \text{TSS}$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
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Copper	$1 + (10^{4.86} \times \text{TSS}^{-0.72} \times \text{TSS}) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times \text{TSS}^{-0.85} \times \text{TSS}) \times 10^{-6}$
Zinc	$1 + (10^{5.36} \times \text{TSS}^{-0.52} \times \text{TSS}) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

- (*9) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness dependent criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(0.7852[\ln(\text{hardness})] - 3.4900)}$
Chromium III	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$
Copper	$e^{(0.8545[\ln(\text{hardness})] - 1.3860)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 4.7050)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 1.1645)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$

Dissolved to total metal multiplier formulas are the same as (*8), acute numerical criteria for aquatic life protection.

- (*10) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primary contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.
- (*11) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.
- (*12) Wasteload Allocation for acute aquatic criteria (WLAa). Dilution type WLAa is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAa formulas for streams:

$$\text{WLAa} = (\text{Cr}/\text{Dilution Factor}) - \frac{(\text{Fs} \times \text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Dilution WLAa formulas for static water bodies:

$$\text{WLAa} = (\text{Cr}-\text{Cu})/\text{Dilution Factor}$$

Cr represents aquatic acute numerical criteria from column (*8).

If Cu data is unavailable or inadequate, assume Cu=0.

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If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*13) Wasteload Allocation for chronic aquatic criteria (WLAc). Dilution type WLAc is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAc formula:

$$WLAc = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAc formulas for static water bodies:

$$WLAc = (Cr-Cu)/Dilution\ Factor)$$

Cr represents aquatic chronic numerical criteria from column (*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*14) Wasteload Allocation for human health criteria (WLAh). Dilution type WLAh is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution

WLAh formula:

$$WLAh = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc, Qrh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAh formulas for static water bodies:

$$WLAh = (Cr-Cu)/Dilution\ Factor)$$

Cr represents human health numerical criteria from column (*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*15) Long Term Average for aquatic numerical criteria (LTAA). WLAa numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32. WLAa X 0.32 = LTAA.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*16) Long Term Average for chronic numerical criteria (LTAc). WLAc numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53. WLAc X 0.53 = LTAc.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*17) Long Term Average for human health numerical criteria (LTAh). WLAh numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1. WLAc X 1 = LTAh.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then a blank shall appear in this column.

- (*18) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation.

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If standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then the type of limit, Aquatic or Human Health (HH), is indicated.

- (*19) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ($LTA_{\text{limiting aquatic}} \times 1.31 = WQBL_{\text{monthly average}}$). If human health criteria was the most limiting criteria then $LTA_{\text{HH}} = WQBL_{\text{monthly average}}$. If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.
- (*20) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 3.11 = WQBL_{\text{daily max}}$). If human health criteria was the most limiting criteria then LTA_{HH} is multiplied by 2.38 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 2.38 = WQBL_{\text{daily max}}$). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDLs, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.
- (*21) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above. $\text{Monthly average WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{monthly average WQBL, lbs/day}$.
- (*22) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above. $\text{Daily maximum WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{daily maximum WQBL, lbs/day}$.
- (*23) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

Appendix C
Biomonitoring
Recommendation

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **LA0002887**
 Facility Name: **Cleco Power, LLC**
 Previous Critical Biomonitoring Dilution: **86%**
 Proposed Critical Dilution Biomonitoring: **55%**
 Outfall Discharge Flow: **264.053 MGD**
 Receiving stream 7Q10: **989.4 cfs**
 Date of Review: **12/02/09; revised 03/05/2010**
 Name of Reviewer: **Laura Thompson**

Recommended Frequency by Species:

Pimephales promelas (Fathead minnow): **Once / Quarter¹**
Ceriodaphnia dubia (water flea): **Once / Quarter¹**

Recommended Dilution Series: **23%, 31%, 42%, 55%, and 74%**

Number of Tests Performed during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **22**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **22**

Number of Failed Tests during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **3 sub-lethal**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **1 lethal, 1 sub-lethal**

Failed Test Dates during previous 5 years by Species:

Pimephales promelas (Fathead minnow): **Testing dates of: 7/1/05-9/30/05 (sub-lethal); 10/1/05-12/31/05 (sub-lethal); 7/1/07-9/30/07 (sub-lethal)**
Daphnia pulex (water flea): **N/A – Testing of species was not required**
Ceriodaphnia dubia (water flea): **Testing dates of: 10/1/07-12/31/07 (lethal & sub-lethal)**

Previous TRE Activities: **N/A – No previous TRE Activities**

¹ This facility shall have an established biomonitoring testing frequency of once per quarter for the term of the permit

Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

Cleco Power, LLC, owns and operates a steam electric generating station in Baldwin, St. Mary Parish, Louisiana. LPDES Permit LA0002887, effective February 1, 2005, contained freshwater chronic biomonitoring as an effluent characteristic of combined Outfalls T01 and T05 for *Ceriodaphnia dubia* and *Pimephales promelas*. Based on a critical flow of 72 cfs for the Charenton Canal, the effluent series consisted of 27%, 36%, 48%, 64%, and 86% concentrations, with the critical dilution being defined as the 86% effluent concentration. The testing was to be performed quarterly. Data on file indicate that the permittee has experienced 1 lethal and 1 sub-lethal failure to the *Ceriodaphnia dubia* and 3 sub-lethal failures to the *Pimephales promelas* during the last five years.

The previous permit's biomonitoring requirements were based on a calculated critical flow of 72 cfs for the Charenton Canal (memo dated August 26, 2003). The biomonitoring recommendation was then made on October 3, 2003. The 7Q10 of 72 cfs was corrected to be 989.4 cfs in a memo dated January 5, 2004 (tidal flow calculations were based on a tidal prism done on a portion of Bayou Teche, Charenton Canal and Lake Fausse Pointe above the discharge point). However, the biomonitoring calculations were not updated in the February 2005 permit to reflect this correction.

The current calculation spreadsheet indicates that reasonable potential for future toxicity may exist for Cleco Power, LLC. According to data on file with LDEQ, this facility experienced one lethal and sub-lethal biomonitoring failure to the *Ceriodaphnia dubia* during the monitoring period of 10/1/07-12/31/07. This lethal failure would not have constituted a failure at the critical biomonitoring dilution (55%) calculated using the corrected critical stream flow of 989.4 cfs, leaving only one sub-lethal failure for this species during the previous permit cycle. Because no other toxicity was observed following this monitoring period, this failure appears to be an isolated event. The facility also experienced three sub-lethal biomonitoring failures to the *Pimephales promelas* during the monitoring periods of 7/1/05-9/30/05, 10/1/05-12/31/05, and 7/1/07-9/30/07. However, because the first two sub-lethal failures occurred almost five years ago, they are not considered representative of current conditions at the plant. The third sub-lethal failure (2007) would not have constituted a failure at the critical biomonitoring dilution (55%) recommended for the renewal of LA0002887. No other toxicity was observed during the permit cycle, with all other tests passing both lethal and sub-lethal endpoints with a critical biomonitoring dilution of 86%. Based on analysis of this available information, LDEQ has determined that a WET limit is not necessary for this facility at this time. In order to generate a complete compliance record, the frequency reduction option will not be available under this reissued permit.

It is recommended that freshwater chronic biomonitoring be an effluent characteristic of Outfalls T01 and T05 (combined discharge of 264.053 mgd) in LA0002887. The effluent dilution series shall be 23%, 31%, 42%, 55%, and 74% concentrations, with 55% being defined as the critical biomonitoring dilution and/or WET limit. Toxicity tests shall be performed on the flow-weighted composite samples of Outfalls T01 and T05. The

FRESHWATER CHRONIC

biomonitoring frequency shall be once per quarter for *Ceriodaphnia dubia* and *Pimephales promelas* for the term of the permit.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3. Version 7 (October 7, 2009), and the Best Professional Judgment (BPJ) of the reviewer.

Reasonable Potential Analysis for WET

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Facility Name Cleco Power, LLC
 Type of Testing Chronic Freshwater
 LPDES Permit Number LA0002887 Outfall number T01&T05
 Proposed Critical Dilution 55 * Critical Dilution in draft permit, do not use % sign

Test Data

Enter data in yellow shaded cells only. Fifty percent should be entered as 50.

Date (dd/mm/yy)	Vertebrate				Invertebrate			
	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU

Min NOEC Observed

86

27

64

48

TU at Min Observed

1.16

3.70

1.56

2.08

Count

22

22

Count

22

22

Mean

1.163

1.338

Mean

1.181

1.205

Std. Dev.

0.000

0.568

Std. Dev.

0.085

0.196

CV

0

0.4

CV

0.1

0.2

RPMF

1.1

1.2

1.1

1.1

Reasonable Potential Acceptance Criteria.

Vertebrate Lethal

1.000

0.703

No Reasonable Potential exists. Permit requires WET monitoring, but no W

Vertebrate Sublethal

2.444

Reasonable Potential exists, Permit requires WET monitoring and WET limi

Invertebrate Lethal

0.945

No Reasonable Potential exists. Permit requires WET monitoring, but no W

Invertebrate Sublethal

1.260

Reasonable Potential exists, Permit requires WET monitoring and WET limi

NOTES:

Appendix D
Environmental Impact Questions
Applicant's Response

SECTION VIII – ENVIRONMENTAL IMPACT QUESTIONNAIRE

Those applicants that are (1) major new facilities or (2) existing major facilities applying for a substantial modification to their permit must complete this questionnaire.

There is no requirement that the information furnished in response to this questionnaire be certified by a professional engineer or other expert. However, simple "yes" or "no" answers will not be acceptable. A measured response should be given for each question posed, taking into consideration appropriate factors such as: the environmental sensitivity of the area, both for the proposed site and alternative sites; impacts on the economy of the area, both favorable and unfavorable; availability of raw materials, fuels and transportation and the impact of potential sites on their availability and economics; relationship of the facility to other facilities, either within or independent of the company; and the effects of location on these relationships; and other factors which may be appropriate on a case-by-case basis. (Attach any additional pages if needed.)

1. Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Existing Facility

To the maximum extent possible, this facility was designed to avoid any potential and real environmental impacts. The Teche Power Station (TPS) has been in operation since 1953. In as much as this question applies to existing facilities, TPS has operated and continues to operate the facility to avoid all potential and real environmental impacts to the maximum extent reasonably possible. The design for the facility incorporates safeguards, engineering controls, and operations and maintenance programs that provide for minimal environmental impact. No known, measurable adverse environmental impacts of an enduring nature have been demonstrated during the operation of the site and no measurable adverse environmental impacts are anticipated to result from its continued operation.

Proposed Unit 4

Cleco Power, LLC (Cleco) has proposed a new Unit 4, a General Electric (GE) Frame 6 combustion turbine with a nominal output of 35 megawatts (MW). A diesel engine [600 horsepower (hp) Detroit engine] will be used to spin-start the turbine. The purpose of proposed Unit 4 is to serve as a backup during emergency power outages, and to supply 35 MW of dispatchable capacity if needed. It is anticipated that Unit 4 will come on line in September 2010. Proposed Unit 4 will result in a minimal amount of effluent discharges. Washwater from cleaning the turbines will not be discharged under the LPDES permit but rather will be properly disposed off site; this effluent is estimated to be a total of less than 5,000 gallons each year. Maintenance washdown water and *de minimis* storm water from the transformer area drains will be routed to proposed new internal Outfall T10 (then to Outfall T01); this flow rate is anticipated to be 5,000 gallons per day (GPD).

The design, construction, and operation of Unit 4 will employ state-of-the-art technology that avoids potential and real adverse environmental effects to the maximum extent possible. Cleco has many years of experience in the generation of electricity and has used this expertise to ensure that no measurable adverse

environmental impacts of an enduring nature will occur due to the operation of Unit 4.

2. Does a cost benefit analysis of the environmental-impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Existing Facility

In as much as no measurable adverse environmental impacts of an enduring nature have been demonstrated during the operation of TPS and no measurable adverse environmental impacts are anticipated to result from its continued operation, no specific or formal cost benefit analysis has been made, or is considered warranted, in connection with this permit application. Nevertheless, it is obvious that social and economic benefits outweigh the environmental impact costs. TPS is specifically designed and operated to minimize environmental impacts in a cost-effective manner. The site provides secure jobs and annual revenue for St. Mary Parish and the State of Louisiana. The facility is operated as per existing regulations, and its operations do not adversely impact public services nor result in measurable adverse environmental impacts of an enduring nature.

Proposed Unit 4

While no formal cost benefit analysis was conducted for proposed Unit 4, it was deemed necessary as a black start unit, to be utilized to restart power to the grid in the event of a total system outage, such as during a hurricane. This function has obvious significant social and economic benefits, which are believed to outweigh environmental impact costs. Restarting electricity immediately after an emergency such as a hurricane is of the utmost importance for public health and safety.

3. Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing nonenvironmental benefits?

Existing Facility

This permit application does not involve a proposed facility; rather, it is a request for modification of an existing facility, previously permitted by LDEQ. The work experience of Cleco personnel in the operation and maintenance of the site minimizes the risk of an environmental incident as compared with an alternative process unfamiliar to personnel. All waste materials are handled and properly disposed in accordance with applicable regulations. Alternative waste handling or disposal methods are not economically feasible and are not warranted at this time from the standpoint of environmental protection. Therefore, a consideration of alternative projects is not deemed necessary or appropriate since this is an existing facility and no measurable adverse environmental impacts of an enduring nature have been demonstrated and no measurable adverse environmental impacts are anticipated to result with continuing operation of the facility.

Proposed Unit 4

Based on Cleco's many years of experience in generating electricity, Unit 4 is believed to be the best project to serve as a backup during emergency power outages and to supply 35 MW of dispatchable capacity if needed.

Currently, Cleco's black start plan relies upon the sequential startup of its 35-year old Franklin gas turbine (8 MW), followed by startup of its 55-year old TPS Unit 1 (23 MW), and its 52-year old TPS Unit 2 (48 MW), then followed by startup of its 38-year old TPS Unit 3 and system restoration. In its evaluation of the effectiveness and reliability of its black start plan, Cleco Power has identified concerns with the following elements of its plan:

- The age and condition of its generation resources critical to its implementation
- The time required to place sufficient generation resources in service to begin system restoration
- The remote location of the Franklin gas turbine relative to TPS [four miles away, and interconnected to TPS via the 34.5 kilovolt (kV) distribution system].

Installation of Unit 4 at TPS would effectively address these concerns for the black start plan. In addition, Unit 4 would supply 35 MW of dispatchable capacity and energy to Cleco's control area and could support a portion of Cleco's ancillary services.

It is believed that there are no alternative projects which would offer more protection to the environment than the proposed Unit 4 being located at TPS without unduly curtailing nonenvironmental benefits.

4. Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing nonenvironmental benefits?

Existing Facility

The existing facility located south of Baldwin, Louisiana offers more protection to the environment than any reasonable alternative. TPS has established provisions and engineered controls for wastewater and storm water treatment and management which make the current location more desirable than any alternative site. In addition, TPS uses best management practices for pollution prevention and waste handling and contingency plans for emergency response. Because no measurable adverse environmental impacts of an enduring nature have been demonstrated and no measurable adverse environmental impacts are anticipated to result from continuing operation and production expansion of the facility, no alternative locations are considered necessary. Relocation of the site would only serve to create new and greater environmental impact.

Proposed Unit 4

Cleco evaluated other sites and came to the conclusion that TPS is the best location for the proposed Unit 4 to serve as a backup during emergency power outages and to supply 35 MW of dispatchable capacity if needed. Locating the unit at an existing electricity generating facility is more desirable than any alternative site. TPS has the necessary space and infrastructure for construction and operation of such a unit. It is believed that there are no alternative sites which would offer more protection to the environment than the proposed Unit 4 site without unduly curtailing nonenvironmental benefits.

5. Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing nonenvironmental benefits?

Existing Facility

TPS was designed and is operated to meet or exceed all applicable environmental, industry, and company standards. No measurable adverse environmental impacts of an enduring nature have been demonstrated and no measurable adverse environmental impacts are anticipated to result from continuing operation of the facility; therefore, no additional mitigating measures are deemed necessary. If wastewater and storm water discharge standards and limitations are redefined in the future, appropriate environmental controls and mitigating measures would be designed and implemented as necessary to achieve the revised standards and limitations. TPS continually trains its employees and reviews and updates all of the facility operations and maintenance schedules and plans; incident response plans; contingency plans; waste management plans; pollution prevention measures and plans; and best management practices on a regular basis to ensure appropriate and effective mitigation measures are undertaken to prevent an environmental incident, and also to respond quickly in the unlikely event of an environmental incident.

Proposed Unit 4

Proposed Unit 4 was designed to meet or exceed all applicable environmental, industry, and company standards. If wastewater and storm water discharge standards and limitations are redefined in the future, appropriate environmental controls and mitigating measures would be designed and implemented as necessary to achieve the revised standards and limitations. It is believed that there are no mitigating measures which would offer more protection to the environment than Unit 4 as proposed without unduly curtailing nonenvironmental benefits.